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QUADRENNIAL DEFENSE REVIEW

Opportunities to Improve the Next Review

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National Security and
International Affairs Division

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The Honorable Strom Thurmond
Chairman
The Honorable Carl Levin
Ranking Minority Member
Committee on Armed Services
United States Senate

The Honorable John R. Kasich
Chairman, Committee on the Budget
House of Representatives

This report discusses whether the Department of Defense's force structure and modernization assessments performed as part of the Quadrennial Defense Review examined alternative ways of implementing the defense strategy. This information should be useful to your Committees in understanding the basis for the force structure and modernization decisions reported by the Department in May 1997 and in your deliberations about the future size and composition of U.S. military forces. This report also contains a recommendation to the Secretary of Defense and a matter for congressional consideration that we believe could improve the structure and methodology of future quadrennial defense reviews.

We are sending copies of this report to other interested congressional committees; the Secretaries of Defense, the Army, the Navy, and the Air Force; the Commandant, U.S. Marine Corps; and the Director, Office of Management and Budget. Copies will also be made available to others on request.

If you or your staff have any questions concerning this report, please call me on (202) 512- 3504. Major contributors to this report are listed in appendix II.

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Analysis

Executive Summary

Purpose

The Department of Defense (DOD) reported in May 1997 that its Quadrennial Defense Review (QDR) provided a blueprint for a strategy-based, balanced, and affordable program to meet defense needs from 1997 to 2015. In response to requests from the Chairman and Ranking Minority Member of the Senate Armed Services Committee and the Chairman of the House Budget Committee, GAO assessed whether (1) the QDR's force structure and modernization assessments examined alternatives to the planned force and (2) opportunities exist to improve the structure and methodology of future QDRs. This is the second of three reports that assess various aspects of the QDR.[1] GAO did not evaluate the rationale for DOD's proposed defense strategy.

Background

In its May 1995 report, the Commission on Roles and Missions of the Armed Forces recommended that DOD lead a comprehensive strategy and force review at the start of each new administration. In August 1995, the Secretary of Defense endorsed performing a quadrennial review of the defense program. Congress, noting the Secretary's intent to complete the first such review in 1997, required in the National Defense Authorization Act for Fiscal Year 1997 that DOD report on a number of topics, including the defense strategy; the force structure best suited to implement the strategy; the effect of new technologies anticipated by 2005 on force structure, doctrine, and operational concepts; and key assumptions used in the review. It also authorized a National Defense Panel, comprising national security experts from the private sector, to review the results of the QDR and conduct a subsequent study to identify and assess force alternatives. DOD completed the QDR in May 1997 and the Panel issued its report in December 1997.

Much of the analysis performed during the QDR was conducted by seven panels tasked to simultaneously review strategy, force structure, modernization, readiness, infrastructure, human resources, and information operations and intelligence issues. To assess force requirements, the force structure panel (1) conducted an assessment that modeled two major overlapping wars on the Korean peninsula and in Southwest Asia in 2006, (2) examined the results of a smaller-scale contingency operations assessment, and (3) led an assessment to examine the capabilities of U.S. forces against a postulated regional great power in 2014. DOD also conducted an overseas presence analysis and several individual service assessments of issues not specifically addressed in the

[1]Quadrennial Defense Review: Some Personnel Cuts and Associated Savings May Not Be Achieved (GAO/NSIAD-98-150, Apr. 30, 1998). Also, GAO will report on DOD's implementation of QDR decisions in the fiscal year 1999 Future Years' Defense Program later this year.

other force assessments. The modernization panel established task forces to review a number of major planned modernization programs. Its goal was to ensure that future U.S. forces will have equipment that leverages new technology and supports the modern, joint capabilities cited in Joint Vision 2010,[2] the Chairman of the Joint Chiefs of Staff's vision for transforming U.S. military capabilities. The panels briefed an Integration Group, led by senior officials from the Office of the Secretary of Defense (OSD) and the Joint Staff, on the results of their assessments. A third tier, the Senior Steering Group, co-chaired by the Deputy Secretary of Defense and the Vice Chairman of the Joint Chiefs of Staff, was established to oversee the process and make recommendations to the Secretary of Defense.

DOD's May 1997 QDR report calls for a U.S. defense strategy under which the United States (1) continues to shape the strategic environment by deploying forces permanently, rotationally, and temporarily; (2) responds to a full spectrum of military operations ranging from deterring aggression and conducting concurrent smaller-scale contingency operations to fighting and winning two major theater wars; and (3) prepares for an uncertain future by responding to new emerging threats, including the potential emergence of a regional great power or global peer competitor, by investing in force modernization, exploiting the potential of advanced technologies, and reengineering DOD infrastructure and support activities. The QDR determined that the military force structure required to meet the strategy would be very similar to that determined by the Bottom-Up Review, DOD's 1993 review of U.S. defense needs (see table 1).

[2]Joint Vision 2010, DOD, Chairman of the Joint Chiefs of Staff, Washington, D.C.

Table 1: DOD's Bottom-Up Review and QDR Force Structures

Service	Bottom-Up Review (Planned fiscal year 1999)	Quadrennial Defense Review
Army		
Divisions-active	10	10
National Guard enhanced readiness brigades	15	15
Navy		
Aircraft carriers	11	11
Reserve carriers	1	1
Air wings-active	10	10
Air wings-reserve	1	1
Attack submarines	45-55	50
Surface combatants	127	116
Air Force		
Fighter wings-active	13	12+
Fighter wings-reserve	7	8
Bombers	Up to 184	187
Marine Corps		
Marine expeditionary forces	3	3

Source: DOD data.

The Secretary of Defense also established a goal to increase procurement funding to $60 billion a year by fiscal year 2001. To achieve this procurement goal and stay within a projected $250 billion defense budget in constant 1997 dollars, the Secretary stated that he would reduce infrastructure; cut almost 200,000 active, reserve, and civilian personnel; and reduce funding for some modernization programs.

Results in Brief

The QDR, while broader in scope and more rigorous in some aspects than DOD's 1993 Bottom-Up Review of U.S. defense requirements, did not examine some alternatives that would have provided greater assurance that it identified the force structure that is best suited to implement the defense strategy, as required by Congress. In addition, DOD's modernization assessment did not always reflect an integrated, mission-focused examination of modernization alternatives. Several factors, including the difficulty of obtaining internal consensus to examine changes in the services' planned force structure, the timing of the process, limitations of DOD's models, and concurrency in conducting force structure and modernization assessments, hampered DOD's efforts. Early, focused

preparation and changes to the QDR process could help DOD improve the next QDR so that it may provide a more thorough examination of U.S. defense needs.

The QDR's force assessments built on DOD's Bottom-Up Review analysis by examining requirements for a broader range of military operations beyond major theater wars and by analyzing the potential impact of some key assumptions such as warning time and enemy use of chemical weapons. However, only one of the three major force assessments—the major theater war assessment—modeled any force structure alternatives. Moreover, it only modeled alternatives to cut the services' forces proportionately by 10, 20, and 30 percent. The assessment did not examine alternatives that involved targeted changes—for example, alternatives that would reduce or increase only ground forces or air power or naval forces—because DOD officials foresaw problems in obtaining service consensus and DOD's models are not sensitive enough to assess the effects of some types of force structure changes. Moreover, although some technologies consistent with Joint Vision 2010 were modeled, none of the assessments fully examined the potential effects of new technologies and war-fighting concepts on DOD's planned force structure.

DOD's modernization review examined some variations of the services' procurement plans but did not include a thorough, mission-oriented review of the mix of capabilities the United States will need to counter future threats. DOD divided responsibility for analyzing major procurement programs and investment issues among 17 task forces and directed them to identify modernization options that would reduce or increase planned funding for systems within each task force by up to 10 percent. This approach may have helped focus task force participants on developing options for replacing current systems, but it did not always provide a mission focus that examined trade-offs or facilitated a fundamental reassessment of modernization needs in light of emerging threats and technological advances. For example, the capabilities used for the close air support mission were examined by different task forces without an overall assessment of mission needs. Also, the modernization and force assessment panels conducted most of their work independently and concurrently, which hampered their ability to explore linkages and trade-offs between force structure and modernization alternatives.

DOD can provide a more thorough review of U.S. defense needs in the next QDR by preparing early, improving its analytical tools, and considering changes to the structure and design of the QDR process. DOD has not yet

developed a formal process to prepare for and coordinate activities related to the next QDR. DOD has some QDR follow-on studies and model improvement efforts underway. However, DOD can take other steps to improve its analytical tools so it can better evaluate the impact of force structure and modernization alternatives on future warfare and smaller-scale contingency operations. Also, changes to the QDR process, such as reducing some of the concurrency in the panels' work and fostering collaboration between the panels could strengthen DOD's analyses. Delaying the start of the next QDR until later in the next presidential administration may also facilitate a more thorough review. If Congress chooses to establish another independent panel of experts to review defense needs, it may wish to require the panel to complete its work prior to the next QDR to provide DOD with a broader set of alternatives to consider.

Principal Findings

QDR's Three Force Structure Assessments Did Not Examine Some Alternatives

DOD's assessment of two major theater wars built on the Bottom-Up Review by modeling shorter warning time, the enemy's use of chemical weapons, and other factors. The assessment also modeled the potential success of smaller force structures comprising 10-, 20-, and 30-percent proportional reductions to each service's combat capability. A 10-percent force reduction, for example, equaled the loss of one Army division, two Air Force fighter wings, one Navy carrier battle group, and appropriate Marine and support forces. DOD concluded that the current force was required to meet the two major theater war requirement but a force close in size and structure to the current force would be successful in some circumstances. DOD did not refine its assessment to determine whether fewer or targeted changes to the services' force structures could be viable force options. DOD officials said they did not perform such analyses because they would not have been able to obtain consensus on the force changes among the services within the time available to complete the QDR and because analyzing such alternatives would require a more sensitive model than currently exists. Finally, although some advanced technologies such as stealth assets and precision-guided munitions were modeled, DOD did not analyze the effects of some other new technologies planned to be available by 2006, such as digitized communications that enhance situational awareness. Some service initiatives, such as the Army's plans to digitize divisions, are expected to be partially implemented during this

time frame. DOD officials stated they did not fully analyze the effects of new technologies because DOD's models are not fully capable of reflecting their impact and because the services do not yet fully understand the effects of such technologies on war-fighting doctrine.

DOD's war game series called Dynamic Commitment examined the force's suitability to carry out a wide range of notional smaller-scale contingency operations and major theater wars projected to occur between 1997 and 2005. The contingencies consisted of disaster relief, evacuations, humanitarian relief, and other operations based on the history of the number and types of such occurrences since 1991. Series participants allocated forces to the operations based on military judgment. The assessment confirmed that the projected force is sufficient in size to meet projected requirements and that some capabilities already known to be stressed will continue to be stressed in the future. Although the series provided participants with some insight into the challenges of conducting multiple, overlapping operations, it did not identify what force would be best suited to meet these demands. Specifically, DOD did not use the series to identify force structure alternatives that (1) might result in a better balance between forces required for smaller-scale contingency operations and major theater wars or (2) eliminate excess capabilities. Moreover, the Joint Staff, which sponsored the effort, did not summarize the results of the analysis.

DOD's modeling of a notional conflict against a regional great power in 2014 tested the impact of different levels of modernization on the forces' ability to achieve success in a future war against such a power. However, it did not examine alternatives that varied the mix of DOD's planned modernization programs to help identify the most cost-effective investments. Also, it did not fully assess the potential impact of new technology on future operational concepts and force structure. The hypothetical scenario involved the United States, with allied support, defending a nation from an invading adversary possessing significant high-technology combat capability. The adversary's capabilities were extrapolated from intelligence data on a current major power experiencing moderate economic growth after examining projected threat data for several potential future adversaries. DOD modeled U.S. capabilities based on its existing 1997 force structure and examined alternatives, including forces modernized with systems included in DOD's fiscal year 1998 Future Years Defense Program projected through 2014 and on forces modernized at one-third and two-thirds of the planned levels. Other excursions tested the effects of enemy ballistic missiles and varying warning times. DOD

concluded that the more modernized the U.S. force, the lower the risk and less time needed to defeat the enemy. DOD officials said they did not analyze alternatives that varied the mix of DOD's planned modernization programs or assess the impact of new technologies on force structure because they had limited time available, the services were uncertain about how new technologies would affect operational concepts and force structure, and the model used for this analysis lacked the sensitivity to assess the effect of alternative force structures.

The force assessments helped senior DOD officials conclude that a 10-percent force structure cut across the board would result in unacceptable risk in implementing the defense strategy. Senior officials agreed on an overall path that made some personnel cuts and modest force structure cuts to achieve savings that could be used to increase modernization funding to $60 billion annually. Specifically, senior civilian and military leaders agreed that the services would develop proposals to reduce the equivalent of about 150,000 active personnel to save between $4 billion and $6 billion. The services developed proposals to save about $3.7 billion largely by streamlining infrastructure functions and by making modest adjustments to force structure. Senior DOD officials identified additional savings by restructuring or reducing quantities of some planned weapon systems and reducing personnel assigned to defense agencies.

Methodology for Modernization Review Resulted in a Primarily Budget-Driven Focus

DOD's modernization review provided senior DOD officials with options for buying major systems in the future, but the methodology for the review resulted in a focus on budget-driven options rather than joint mission assessments. DOD's modernization panel identified 17 topics, such as tactical aircraft, ships, theater missile defense, and ground forces. The panel assigned these topics to task forces that independently analyzed existing procurement plans for each group of systems based on their view of the capabilities for Joint Vision 2010 and using the procurement funding reflected in the 1998 Future Years Defense Program as a baseline. The panel directed the task forces to consider increasing or decreasing funding allocated to each group of systems by up to 10 percent as a means of encouraging them to develop options to modify planned programs. For example, the task force that evaluated tactical aircraft developed an option that decreased the number of Air Force F-22s, Navy F/A-18E/Fs, and Joint Strike Fighters, thereby reducing total funding for these aircraft by $30 billion, or about 10 percent. Senior DOD officials considered these options when reaching decisions to change some procurement plans.

Neither the modernization panel nor the task forces that reported to the panel took an integrated look at the mission impact of procurement options or final decisions to determine if they resulted in the best system mix. For example, the helicopter; tactical air; command, control, communications, computers, intelligence, surveillance, and reconnaissance; and other ground capabilities that might be used for the close air support mission were evaluated separately without an overall assessment of mission needs. GAO's previous report on combat air power commented on DOD's need to examine the services' procurement plans from a joint mission perspective to better enable the Secretary of Defense to prioritize programs, objectively weigh the merits of new investments, and decide whether current programs should continue to receive funding. [3] Furthermore, modernization plans were reviewed simultaneously but largely separately from force assessments, and the QDR modernization decisions were not modeled in DOD's regional great power assessment.

Preparing Early and Considering Changes to the QDR Process Can Help Provide a More Thorough Review

Although there is no current statutory requirement for another QDR, the Secretary of Defense has endorsed the concept of a quadrennial review. DOD could implement this commitment by taking several steps now to prepare for the next QDR. The Secretary of Defense has not yet established formal oversight at a senior level to facilitate preparation for the next review. Assigning responsibility well in advance is needed to provide sufficient time to complete numerous preparation tasks, including analyzing lessons learned from DOD's 1997 review and identifying a strategy to improve and build on its principal analyses. While DOD's 1997 QDR expanded on the analytical tools used in prior defense force analyses, DOD recognizes that its models currently have significant limitations in realistically modeling certain aspects of warfare such as command, control, and intelligence. As a result, DOD has a significant effort underway to improve its models for simulating major theater wars. However, DOD also needs to determine how it can improve its analysis of requirements for smaller-scale contingencies and longer-term threats. Moreover, DOD will need to consider how new technologies and concepts available to U.S. military forces will impact a wide range of military operations. Finally, modeling the existing force structure prior to the QDR could provide a baseline for comparing alternatives examined during the next QDR.

Opportunities may also exist to improve the QDR process. The force assessment and modernization panels proceeded concurrently and did not

[3] Combat Air Power: Joint Mission Assessments Needed Before Making Program and Budget Decisions (GAO/NSIAD-96-177, Sept. 20, 1996).

fully collaborate, which resulted in limited analysis of trade-offs between modernization and force structure. For example, some defense experts argue that spending money on technology such as stealth aircraft and precision munitions should enable the United States to reduce force structure. In addition, QDR participants provided different views on the process used to develop the defense strategy. OSD officials noted that the strategy review began in the fall of 1996 and proceeded smoothly. However, some service officials and QDR panel members believe that the panels experienced some confusion because DOD had a draft defense strategy in January 1997, but did not finalize it until March 1997. Changing the timing of the QDR process might also help the thoroughness of analyses. The QDR was envisioned to begin immediately after the presidential election to allow a new administration the chance to affect the next budget cycle. Even though the 1997 QDR was performed by a returning administration, many DOD officials told GAO the panels did not receive final, top-level guidance until mid-January, after the new Secretary of Defense was confirmed. As a result, DOD had only a few months to finalize the strategy, complete its force structure and modernization analyses, and make final decisions. It may be even more difficult to adhere to this schedule following the 2000 election because there will be a change in administration.

Congress might be able to assist DOD in identifying a broader set of options to explore during the next QDR. In the National Defense Authorization Act of 1997, Congress established an independent panel to assess the QDR and report on possible force structure alternatives after the QDR was completed. As an alternative, Congress might want an independent panel assessment prior to the next QDR to encourage DOD to explore different defense strategies, force structures, and modernization alternatives.

Recommendation

The Secretary of Defense has endorsed the concept of a quadrennial review of defense needs. To enhance the value of the next QDR, GAO recommends that the Secretary of Defense assign responsibility for overall oversight and coordination of DOD preparation efforts. Preparation tasks should include identifying the analytical tools and data needed to support force structure and modernization analyses, monitoring the status and funding for efforts to upgrade DOD's models, summarizing lessons learned from the 1997 QDR, and considering the need for changing the structure and timing of the QDR process.

Matter for Congressional Consideration

If Congress chooses to establish another panel of experts to provide an independent review of defense needs, it may wish to require the panel to complete its work prior to the next QDR. This approach could assist DOD in identifying a broader set of options to examine during its review.

Agency Comments

In written comments on a draft of this report (see app. I), DOD concurred with GAO's recommendation but disagreed with several of GAO's characterizations of the QDR effort. DOD's comments and GAO's detailed evaluation of them are included in the report where appropriate.

Specifically, DOD agreed that the Secretary of Defense should assign responsibility for overall oversight and coordination of DOD efforts to prepare for the next QDR. DOD stated it is identifying the analytic tools and data that will be needed for the next QDR and is improving existing tools where shortcomings have been identified. It also stated that it is examining areas of U.S. defense strategy that either were not fully explored in the QDR or were raised by the National Defense Panel and has commissioned internal and external studies summarizing lessons learned from the 1997 QDR. DOD also agreed that any mandated independent panel similar to the National Defense Panel should precede the Department's own QDR efforts. However, DOD disagreed with GAO's findings that (1) the QDR panel process may have been hampered by its concurrency, (2) the modernization effort was "budget driven", (3) modernization and force structure decisions were not integrated, and (4) beginning the QDR process later in a presidential administration is a viable alternative to the timing of the 1997 QDR.

DOD observed that OSD and joint staff representatives had thoroughly briefed all other QDR panels on the draft strategy and that any delays in other panels' work should not be blamed on the absence of a final strategy. GAO's report acknowledges that the draft strategy was circulated to panel chairs in January 1997 and that some DOD officials see no need to alter the timing of the strategy review. However, because some officials perceived that the lack of a final strategy led to confusion, GAO believes that DOD should consider this information in evaluating changes to the QDR process. GAO also notes that the 1997 QDR was conducted under favorable conditions in that many senior DOD officials were in place prior to the November presidential election to begin work on the strategy and major elements of the strategy remained the same. GAO believes that significant concurrency between the strategy review and force structure and modernization assessments could be more problematic for the next QDR, which will be conducted by a new administration, particularly if senior

officials decide on a new strategy that alters key force planning assumptions.

DOD also stated it disagreed that the force assessment and modernization panels functioned as stovepipes and noted that the QDR structure allowed each panel to focus on a tractable set of issues while enabling senior leaders to evaluate and make decisions based on an integrated picture. GAO notes that senior DOD officials considered broad trade-offs between force structure and modernization at the macro level in determining which of three paths to adopt to meet near- and long-term challenges. However, the panels that provided input to senior officials did not fully examine trade-offs between modernization and force structure. GAO believes that more in-depth analysis of these issues would have enhanced the overall value of DOD's review and the alternatives presented to senior officials. For example, DOD's regional great power analysis modeled planned investments, such as precision munitions and stealth aircraft, but did not examine whether such technologies would permit a different force structure.

DOD also said that GAO's assertions that the QDR modernization options were budget-driven and based solely on a plus-or-minus 10-percent rule were inaccurate and noted that the primary factor influencing the modernization analyses was the capabilities of current and planned systems. GAO did not assert that the QDR modernization options were based solely on a plus-or-minus 10-percent rule. Rather, GAO's report specifically recognizes that DOD's modernization assessment was based on a number of factors including Joint Vision 2010. However, GAO believes that DOD's guidance to the modernization task forces to consider increasing or decreasing funding for planned programs by 10 percent, combined with its stovepipe approach for analyzing groups of similar weapons systems, may have limited the types of alternatives considered when compared with a mission-oriented approach.

Finally, DOD believes that there are numerous disadvantages to conducting the QDR later in a presidential administration, including that the Secretary of Defense would have to submit two budgets before submitting one that reflects the QDR's results. GAO recognizes DOD's concerns but continues to believe that delaying the process would give a new administration the benefit of more time to perform a more rigorous review before reaching conclusions that will shape the future of DOD and its budgetary priorities.

DOD also provided GAO with technical comments on the report and where appropriate, GAO changed or clarified information in the report.

Contents

Appendixes

Tables

Figures

Abbreviations

C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
DOD	Department of Defense
GAO	General Accounting Office
JICM	Joint Integrated Contingency Model
JWARS	Joint Warfighting System Model
OSD	Office of the Secretary of Defense
QDR	Quadrennial Defense Review
TACWAR	Tactical Warfare Model

Chapter 1

Introduction

In the early 1990s, the Department of Defense (DOD) conducted two major defense reviews—the 1991 Base Force Review and the 1993 Bottom-Up Review—to assess military force structure requirements in the post-Cold War era. Following these reviews, Congress established the Commission on Roles and Missions of the Armed Forces to determine the appropriateness of current allocations of roles, missions, and functions among the armed forces and make recommendations for changes. Among its recommendations, the Commission called for DOD to conduct a comprehensive strategy and force review at the start of each administration, or every 4 years, to examine an array of force mixes, budget levels, and missions to identify the best force mix. In August 1995, the Secretary of Defense endorsed performing a quadrennial review of the defense program. He expected to complete the first such review in 1997.

Congress, noting the Secretary's intention to complete a Quadrennial Defense Review (QDR) in 1997, identified specific reporting requirements for the review in the National Defense Authorization Act for Fiscal Year 1997.[1] Congress expected the QDR to review the defense strategy of the United States and identify the force structure best suited to implement the strategy. Specifically, the law required a comprehensive examination of defense strategy; active, guard, and reserve component force structure; force modernization plans; infrastructure; budget plans; and other elements of the defense program. The law also required DOD to identify how the force structure would be affected by new technologies anticipated to be available by 2005 and by the changes in doctrine and operational concepts that would result from such technologies. DOD issued its report on the QDR in May 1997.

The law also established an independent, nonpartisan panel comprising national security experts from the private sector, known as the National Defense Panel, to review the results of the 1997 QDR and conduct a subsequent study of force alternatives. Congress noted that it was important to provide for an independent review of force structure that extends beyond the time frame of the QDR and explores innovative and forward-thinking ways of meeting emerging challenges. The National Defense Panel issued its report in December 1997 as required by the statute.

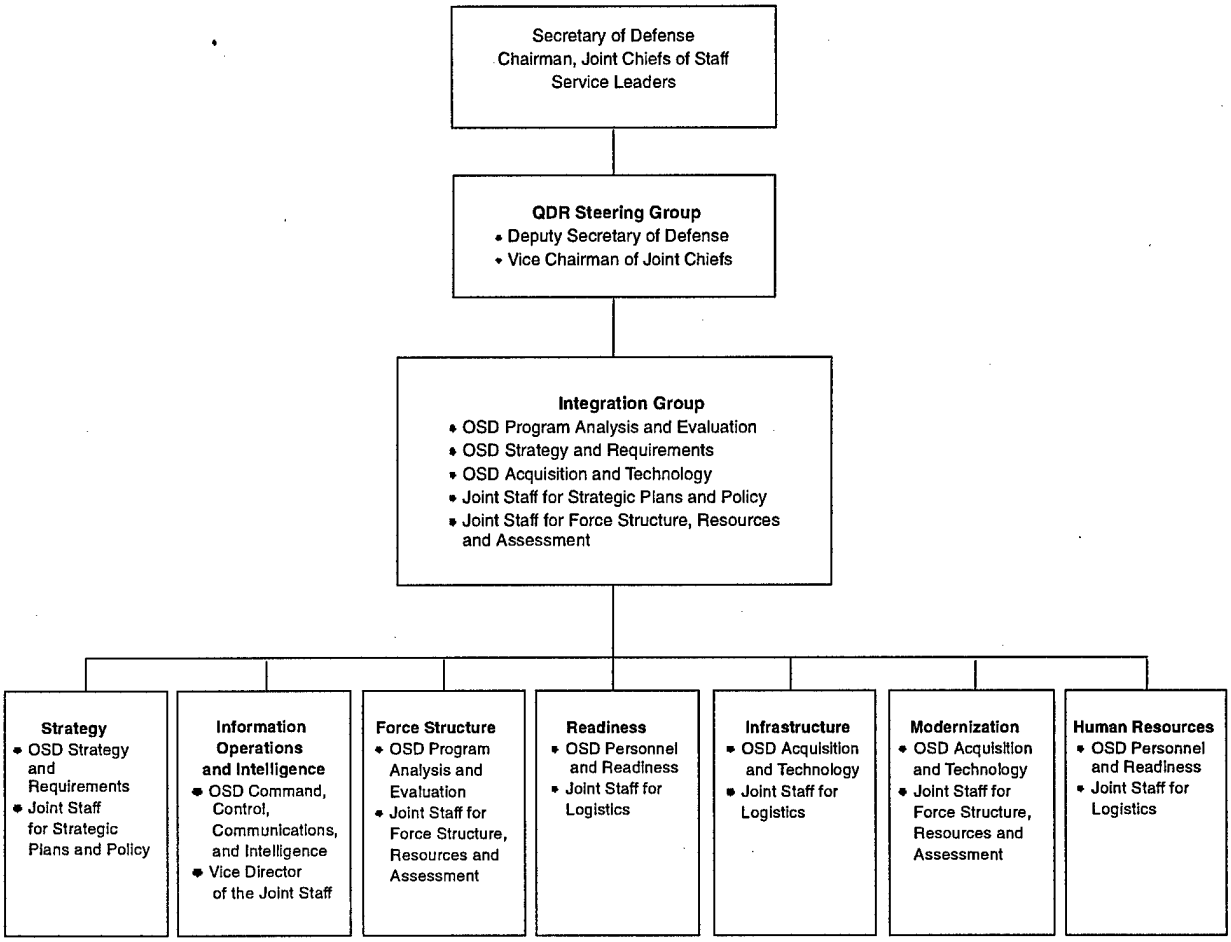
[1]Public Law 104-201, title IX, subtitle B, sections 921-926.

DOD's Process for Conducting the QDR

DOD began the QDR in November 1996 after the presidential election. Although the President was reelected, the QDR was underway for approximately 2 months before a new Secretary of Defense was confirmed in January 1997. Following his confirmation, the Secretary provided guidance to DOD officials concerning the defense strategy and budget assumptions for the QDR.

The QDR included participation by the Office of the Secretary of Defense (OSD), the Joint Staff, the services, and the commanders in chief of the combatant commands. DOD organized officials into three tiers that ultimately reported to the Secretary of Defense (see fig. 1.1). The first tier consisted of seven panels that were tasked to conduct analyses between November 1996 and February 1997. The second tier, an Integration Group led by senior OSD and Joint Staff officials, was designed to integrate the seven panels' results and produce a set of options to implement the defense strategy. The third tier, the Senior Steering Group, cochaired by the Deputy Secretary of Defense and Vice Chairman of the Joint Chiefs of Staff, was to oversee the QDR process and make recommendations to the Secretary of Defense.

Figure 1.1: Diagram of QDR Organizational Tiers



Source: OSD.

To assess force structure requirements, DOD's force structure panel (1) conducted an assessment by modeling two major, overlapping wars on the Korean peninsula and in Southwest Asia in 2006; (2) examined the results of an assessment, led by the Joint Staff, of smaller-scale contingency operations; and (3) led an assessment of the capabilities of

U.S. forces against a notional regional great power in 2014. DOD also conducted an analysis of overseas presence and several individual service assessments of some issues not specifically addressed in the other assessments.

The modernization panel established task forces to review a number of major planned modernization programs. Its goal was to ensure that future U.S. forces will have equipment that leverages new technologies and supports the modern, joint capabilities cited in Joint Vision 2010, the Chairman of the Joint Chiefs of Staff's vision for transforming U.S. military capabilities for the future.

DOD's Assessment of the Security Environment

DOD's QDR report states that although the threat of global war has receded, the United States will likely face a number of significant challenges between now and 2015. First, the United States will continue to confront regional dangers, including the threat of large-scale, cross-border aggression against allies in key regions by hostile states with significant military power. Moreover, adversaries may use asymmetric means—avoiding conventional military contact—to attack U.S. forces and interests overseas and Americans at home. In addition, failing states may create instability, internal conflict, and humanitarian crises.

DOD also concluded that the proliferation of advanced weapons and technologies could increase the number of potential adversaries with significant military capabilities and potentially change the character of military challenges. Of particular concern are the spread of nuclear, biological, and chemical weapons; information warfare capabilities; advanced conventional weapons; stealth capabilities; unmanned aerial vehicles; and capabilities to access or deny access to space. Moreover, U.S. interests will be challenged by a variety of transnational dangers, such as terrorism, illegal drug trade, international organized crime, and the uncontrolled flow of migrants. Finally, the United States will face threats to the homeland from strategic arsenals, intercontinental ballistic missiles, and weapons of mass destruction.

According to intelligence sources, it is unlikely that a "global peer competitor" will emerge by 2015 with capabilities that could challenge the United States as the Soviet Union did during the Cold War. Furthermore, it is likely that no regional power or coalition will amass sufficient conventional military strength in the next 10 to 15 years to defeat U.S.

forces. However, it is possible that a regional great power or global peer competitor, such as Russia and China, may emerge after 2015.

The U.S. Defense Strategy

On the basis of DOD's assessment of the global security environment through 2015, the QDR report cited a defense strategy consisting of three key elements: shape, respond, and prepare. The strategy states that the United States must continue to shape the strategic environment by promoting U.S. interests through a variety of means, including the deployment of forces permanently, rotationally, and temporarily overseas. The United States must also maintain the capability to respond to a full spectrum of military operations ranging from deterring aggression and conducting concurrent smaller-scale contingency operations to fighting and winning two major theater wars nearly simultaneously. The strategy also cited the need to prepare for a future that may include the emergence of new threats and/or a regional great power or global peer competitor by investing now in force modernization, exploiting the potential of advanced technologies, and reengineering DOD's infrastructure and support activities.

The QDR-Proposed Force Is Very Similar to the Bottom-Up Review Force

According to DOD, the force structure proposed by the QDR sustains the forces and capabilities needed to meet the demands of the strategy in the near term while also beginning to transform the force for the future. The QDR endorsed a force structure that is very similar, although slightly smaller, to that proposed by the Bottom-Up Review. The Secretary of Defense also concluded that DOD should increase procurement funding to $60 billion a year by 2001. To achieve this goal and stay within a $250 billion projected defense budget in constant 1997 dollars, the Secretary directed a reduction of DOD's infrastructure, cutting almost 200,000 active, reserve, and civilian personnel, and a reduction in funding for some modernization programs, such as the Joint Surveillance and Target Attack Radar System and F-22, F/A-18E/F, Joint Strike Fighter, and MV-22 aircraft.

The National Defense Panel Emphasized the Need to Prepare for the Future

In December 1997, the National Defense Panel reported that the challenges of the twenty first century will require fundamental changes to national security institutions, military strategy, and defense posture by 2020. To make these changes, the Panel stated that the United States must move more quickly to transform its military and national security structures, operational concepts, equipment, and business practices. Specifically, the Panel stated that DOD placed too much emphasis on

preparing for the unlikely probability of two major theater wars because it serves as a means to justify the current force structure. The Panel noted that funds now spent on preserving forces could be better spent on preparing for the future, thereby reducing the risk to long-term security.

The Panel also said that some of the services' procurement plans did not advance the transformation of current capability to that needed in the future. It said the procurement budgets of the services remain focused on systems that will be at risk in 2010 to 2020 instead of emphasizing experimentation with a variety of military systems, operational concepts, and force structures. The Panel estimated that $5 billion to $10 billion annually is needed for initiatives in intelligence, space, urban warfare, joint experimentation, and information operations. According to the Panel, these funds should come from acquisition reform and cutting excess infrastructure. However, if these reforms do not materialize, the funds may need to come from reduced operating levels, a smaller force structure, or cancellation of some procurement programs.

Objectives, Scope, and Methodology

In response to requests from the Chairman and Ranking Minority Member of the Senate Armed Services Committee and the Chairman of the House Budget Committee, we assessed whether (1) the QDR's force structure and modernization assessments examined alternatives to the planned force and (2) opportunities exist to improve the structure and methodology of future QDRs. Although we did not evaluate the rationale for the defense strategy cited in the QDR report, we obtained briefings and had discussions with officials in the Office of the Assistant Secretary of Defense for Strategy and Requirements and the Joint Staff about its development and content.[2] We also reviewed reports and interviewed officials in the Defense Intelligence Agency and National Intelligence Council about near-and long-term threats relevant to the strategy.

To evaluate the extent to which DOD's three principal force structure assessments—the two major theater wars, smaller scale contingencies, and future regional great power—analyzed alternatives, we obtained briefings, reviewed documents, and interviewed officials in OSD, the Joint Staff, the services, the U.S. Atlantic Command, and the U.S. Central Command. We also obtained and analyzed key assumptions used in these force assessments, such as assumptions about warning time and level of allied participation, and compared these assumptions with those used by

[2]This office is now referred to as the Office of the Assistant Secretary of Defense for Strategy and Threat Reduction.

the Bottom-Up Review. Moreover, we discussed the rationale for the assumptions with OSD, Joint Staff, and service officials.

To evaluate the reliability of computer-generated data produced by the two campaign models used to assess forces during the QDR—the Tactical Warfare Model (TACWAR) for the two major theater war assessment and the Joint Integrated Contingency Model (JICM) for the war with a regional great power—we examined the process DOD uses to validate the models and the data DOD used as model inputs. We reviewed documents on the TACWAR model from the U.S. Army Training and Doctrine Command Analysis Center as well as documents related to JICM. We also reviewed Defense Modeling and Simulation Office documents and interviewed an Office official on DOD's process of model verification, validation, and accreditation. In addition, we observed TACWAR demonstrations so that we could better understand how the outputs are generated. Although we did not review or validate the actual computer-generated data used as input to the two models, we reviewed various estimates and conclusions that flowed from that data. More specifically, we interviewed OSD officials about the Joint Data Support System as well as DOD and RAND officials about their verification and validation process and means for maintaining data entered into TACWAR and JICM. Also, we evaluated the steps taken by DOD to ensure the quality of data extracted from a major TACWAR data source, the Deep Attack Weapons Mix Study, as well as other sources that served as input. We believe this to be a reasonable approach to identifying the strengths and limitations of these models and the data because (1) there are credible sources within the defense community such as the TACWAR users group, RAND, Defense Modeling Simulation Office, and Coleman Research that evaluate the models and (2) running test data through the models was not feasible for time and cost reasons.

To evaluate the extent to which the modernization review evaluated alternatives, we obtained briefings and interviewed the cochairs of the Modernization Panel from the offices of the Under Secretary of Defense for Acquisition and Technology, Director for Strategic and Tactical Systems, and the Joint Chiefs of Staff. We also interviewed OSD, Joint Staff, and service officials who supported the Modernization Panel, and we were briefed on and reviewed documents related to the results of 7 of DOD's 17 modernization task forces. Specifically, we reviewed results for theater ballistic missile defense, the Joint Surveillance and Target Attack Radar System, national missile defense, tactical aircraft, ship acquisition, Marine Corps ground forces, and Marine Corps rotary wing forces. OSD officials

and panel representatives did not maintain data on the total modernization funding associated with each of the 17 task forces.

To determine whether opportunities exist to improve the structure and methodology of future QDRs, we reviewed documents and interviewed officials from the Office of the Assistant Secretary of Defense for Strategy and Requirements and the Director, Program Analysis and Evaluation, concerning the 1997 QDR process. We drew on our analysis of the process and implementation of the force assessment and modernization reviews to identify and summarize factors that hampered DOD's 1997 QDR process. We also obtained information on studies initiated by DOD following the QDR's completion and on DOD's plans to develop a new joint campaign model. We discussed our observations with officials in OSD, the Joint Staff, and the services and obtained their views on the design and implementation of the QDR and ways to improve it.

We conducted our review from July 1997 to April 1998 in accordance with generally accepted government auditing standards.

Force Structure Assessments Tested Limited Alternatives

The QDR's major theater war assessment, smaller-scale contingency war game series, and future regional great power assessment used some analytical tools different from those used in the Bottom-Up Review to analyze a broader range of military operations and conduct greater analysis of some key assumptions. These assessments concluded that the current force structure was sufficient to meet the U.S. defense strategy. However, only one—the major theater war force assessment—evaluated any alternative force structures, and they were limited. Furthermore, none of the assessments fully examined the impact of evolving technologies and operational concepts on future force size and structure. As a result, senior DOD officials recommended a force structure without examining some alternatives that would have provided greater assurance that DOD complied with congressional guidance to identify the best suited force.

Major Theater War Assessment Explored a Few Force Structure Alternatives

According to the U.S. defense strategy, the United States must be able to fight and win two overlapping major theater wars, preferably in concert with regional allies. As part of the QDR force assessment analysis, DOD modeled the sufficiency of U.S. forces to fulfill this requirement. This effort was more extensive than the analysis done during the Bottom-Up Review in that DOD modeled enemy use of chemical weapons, shorter warning time, and some level of initial engagement in peacetime operations. However, other than the current force, the only force structures modeled were those resulting from 10-, 20-, and 30-percent cuts equally proportioned to each service's forces, according to Joint Staff and OSD officials.

DOD Used the TACWAR Model to Analyze Forces Needed for Two Major Theater Wars

OSD's Office of Program Analysis and Evaluation and the Warfighting Analysis Division of the Joint Staff's Director for Force Structure, Resources, and Assessment performed the two major theater war assessment using the TACWAR model and data from the Deep Attack Weapons Mix Study. TACWAR is a theater-level model that assesses force structures and resource allocations within the context of a joint campaign. The model ran on a 12-hour battle cycle, and operators, using their military judgment, could make periodic adjustments to the scenario to correct or revise any results that appeared unrealistic. For example, the model allowed units in a sector to move at their own speed. However, in a realistic situation, units would travel together to protect each other's flanks. The operators could adjust the speed of the units to ensure that they moved in concert. The results were then weighed against measures of effectiveness drawn from the war game for the Bottom-Up Review. The

Deep Attack Weapons Mix Study data came from a recent DOD effort to assess deep attack requirements across the services. A key objective of the study was to analyze weapon mix requirements for DOD's planned force in 1998, 2006, and 2014 and determine the impact of force structure changes on the weapons mix.

TACWAR was developed in the 1970s and has been revised several times. While officials agreed that TACWAR is the best campaign model available at this time, they also acknowledged that it has limitations. For example, it models the ground campaign better than the air or naval campaigns. Also, the model provides an aggregated look at the battlefield, which means it is not very useful for identifying details of the impact of particular weapon systems or force structure changes on the battle or the impact of some new technologies and emerging operational concepts.

DOD officials used Deep Attack Weapons Mix Study data because they concluded it was the most current and complete information available on force structure, movement into theater, weapon system capabilities, and target locations. Also, according to officials, given the short time frame available to complete the assessment, it was important that the data was in the necessary format for TACWAR and ready to use. The recently completed study, according to one service official, was the most detailed and comprehensive force and weapon mix analysis conducted by the defense community. During the study, the services repeatedly reviewed and revised the data to ensure its accuracy. As a result, while the services did not participate directly in TACWAR's major theater war assessment, OSD and Joint Staff officials stated they were satisfied the services had sufficient input to the data used in the analysis.

The Major Theater War Analysis Required DOD to Specify Threat, Scenario, and Assumptions

To run the major theater war force assessment, OSD and the Joint Staff made assumptions regarding the threat, battle scenario, and other factors. The threat was based on the Defense Intelligence Agency's projection of Iraq and North Korea as aggressors in 2006. The scenario was taken from defense guidance. It featured the first major theater war starting after a warning period, followed by the second, overlapping major theater war. Defense guidance also provided many of the operational assumptions for the scenario such as warning times, separation times between the two wars, equipment prepositioned in theater, call-up of reserve forces, allied participation, access to overseas bases, and port and transportation availability. However, other assumptions came from the war game analysis used in the Bottom-Up Review. These included assumptions about the

readiness of U.S., allied and aggressor forces; that some forces from the first major theater war would be available for the second war's counteroffensive; and that some forces were already deployed overseas. Since TACWAR cannot model command, control, communications, computers, intelligence, surveillance, and reconnaissance effectively, the model was adjusted to degrade munitions effectiveness to represent these projected capabilities, according to Joint Staff officials.

DOD Used Measures of Effectiveness to Determine Levels of Risk

The success of U.S. forces in the major theater wars was determined by assessing the risk associated with each phase of the battle and the overall campaigns. OSD and the Joint Staff identified several specific tasks as measures of effectiveness in achieving the operational objectives for each war. These tasks included minimizing allied losses, holding battle lines, and affecting important targets. Operators measured the extent to which these tasks were accomplished during each battle phase and for the war in each model run. The operators were also able to gain insights about critical requirements for battle success, operational abilities of each force, and problems that may be encountered in each war.

DOD Modeled Force Sizes and Some Other Factors

Once the base-case two major theater war scenario was established, OSD modeled the sufficiency of DOD's planned forces for 2006, including the new or modernized weapons planned for purchase by that time, according to OSD and Joint Staff officials. It also modeled several excursions based on equally proportioned 10-, 20-, and 30-percent reductions to the forces. For example, a 10-percent force reduction meant the elimination of one Navy carrier battle group, one Army active division, and two Air Force fighter wings, along with some Marine Corps and support units. The 20-percent reduction meant the Army and Navy would lose two units each and the Air Force would lose four wings. With the 30-percent reduction, the Army and Navy would lose three units each and the Air Force would lose six wings. There would also be commensurate reductions in Marine Corps and support units.

OSD and the Joint Staff also modeled other excursions from the base-case two major theater war scenario. They included shorter warning time, the enemy's use of chemical weapons in both wars, and a combination of both short warning and the use of chemical weapons. Each of these excursions required DOD to make more assumptions in addition to those already made. The shorter warning excursion assumed the U.S. forces were given fewer days' notice in advance of the start of the second war than in the base-case

scenario. According to a Joint Staff official, the chemical excursion modeled a realistic scenario for the U.S. force and allies, which was neither a best nor worst case situation. This included assumptions about weather conditions, the number and type of weapons, and delivery methods. Information for this scenario was drawn from Defense Intelligence Agency data on the type and number of weapons in the enemies' inventories and how the enemies would deliver those weapons. Information such as dispersion rates and lethality of chemical agents modeled came from the Army Chemical School. In many of the excursions, OSD and the Joint Staff also modeled the impact of U.S. forces being engaged in various types of operations around the world, such as humanitarian assistance or peacekeeping operations, when the first major theater war started.

The Joint Staff was responsible for modeling these excursions, analyzing the results of the battles, and determining the risk levels to assign to the battle based on the accomplishment of the specified tasks. As shown in table 2.1, excursions were run for each of the different force levels—the current projected force and 10-, 20-, and 30-percent reductions—using the base-case two major theater war scenario. However, not all force levels were modeled against all variables because, according to officials, the resulting risks for some force levels would be too high.

Table 2.1: Excursions Modeled in the Two Major Theater War Force Assessment

	Basic scenario	Chemical attack	Short warning	Chemical attack/short warning
Projected force	X	X	X	XX
10% reduction	X	XX		
20% reduction	XX	XX		
30% reduction	XX			

X=Excursion modeled.

XX=Excursion modeled included an assumption that some forces would be involved in peacetime engagement at the outset of the first conflict.

Source: OSD Program Analysis and Evaluation.

The Assessment Identified Risks to Making Broad Force Cuts but Did Not Explore Other Alternatives

U.S. forces won the two wars in every excursion modeled, but their effectiveness in achieving all the specific tasks varied to the point that the risks associated with some excursions were unacceptable, according to OSD and the Joint Staff. As a result, DOD officials concluded that a force

close in size and structure to the current one would be needed to win two, nearly simultaneous major theater wars in concert with regional allies. However, the analysis also showed that a slightly smaller force would be able to win without a significant increase in risk in the base-case scenario. When chemical weapons or shorter warning times were involved, the current force was necessary to conduct these operations with an acceptable level of risk.

Although the analysis showed that a slightly smaller force was able to meet many of the two-war requirements without a significant increase in risk, OSD did not refine the analysis to model other force reductions, like 5 or 15 percent, to see if they would produce viable force options. They also did not model alternatives that would have affected the services' forces unequally, such as using a small reduction to one service's forces, but no reduction or even a slight increase to other services' forces. An OSD official stated that, given the time available to perform this assessment, OSD would not have been able to obtain consensus among the services on what smaller force reductions should look like or how unequal force reductions should be taken. Also, OSD and Joint Staff officials stated that the TACWAR model is not sensitive enough to effectively model slight changes in forces. As a result, information on potential alternatives to the current force was not available to the Secretary of Defense for determining the best-suited force to carry out the strategy.

While the major theater war assessment modeled the modernized force planned for 2006, which includes such things as stealth technology and precision-guided missiles, DOD did not fully examine how new technologies might affect future operational concepts or force structure. For example, as a result of its Army Force XXI initiative, the Army plans to begin fielding units that will have an enhanced situational awareness of the battlefield through digital technology by 2006. Also, the Air Force has proposed an alternative concept of operations using massive air strikes at the beginning of a war, with more munitions than currently planned, to rapidly halt the enemy's advance and provide more time for a ground buildup. Yet, neither was modeled during the major theater war analysis. OSD and Joint Staff officials stated that they did not analyze the effects of new technologies or concepts because the TACWAR model is not sensitive enough to do so. They also stated that the services are not far enough along in their understanding of how new technologies and concepts will affect war-fighting doctrine.

DOD's Smaller-Scale Contingency Force Assessment Evaluated the Sufficiency of the Planned Force

According to the U.S. defense strategy, the U.S. military must be prepared to successfully conduct multiple, concurrent smaller-scale contingency operations worldwide in any environment, including one in which an adversary uses nuclear, chemical, or biological weapons. The QDR's primary assessment of the ability of U.S. forces to respond to such operations was the Dynamic Commitment war game series. This series of conferences and war games was designed to evaluate whether the planned force was sufficient to meet the demands of the full range of military operations from 1997 to 2005 and how engagement in smaller-scale contingencies might affect the forces' ability to respond to major theater wars. While this assessment provided several insights into how forces were allocated to a wide range of operations, it did not evaluate alternative force structures to identify the force best suited to meet the demands of the defense strategy.

QDR Went Further Than Past Assessments in Examining Requirements for Smaller-Scale Contingencies

During the QDR, DOD expanded on the Bottom-Up Review's examination of force requirements for smaller-scale contingencies. Smaller-scale contingency operations encompass the full range of military operations other than peacetime engagement activities but short of a major theater war. These operations include peacekeeping, humanitarian assistance, noncombatant evacuations, limited strikes, and disaster relief. DOD expects the demand for such operations will remain high over the next 15 to 20 years and that these operations will pose the most frequent challenge to U.S. forces through 2015. According to the QDR, U.S. forces must also be able to withdraw from these contingencies, reconstitute, and then deploy to a major theater war within the required time.

DOD Used the Dynamic Commitment War Game Series to Test the Sufficiency of Forces for a Range of Military Operations

The Joint Staff developed the Dynamic Commitment war game series to test whether the currently planned force structure was sufficient to execute the range of potential military operations. The Joint Staff also designed the series to help the services identify stress points—forces that sustained high operating tempo in conducting multiple contingency operations. Dynamic Commitment was not designed to evaluate the forces' effectiveness, according to OSD officials. The forces were assumed to be ready when called upon and effective in meeting operational requirements. Two major theater wars were incorporated in the war game series to test the forces' ability to sufficiently respond when some forces were already deployed to smaller-scale contingencies.

During Dynamic Commitment, participants from the Joint Staff, combatant commands (geographical and special operations), and service staffs (including reserve components and the Coast Guard), allocated forces to multiple, overlapping smaller-scale contingencies and major theater wars forecasted over 9 years. Nearly 50 notional smaller-scale contingencies were developed to illustrate the full spectrum of potential U.S. military operations short of a war. The contingencies consisted of interventions, shows-of-force, no-fly zone enforcement, maritime sanction enforcement, disaster relief, peacekeeping, noncombatant evacuations, and humanitarian assistance. The contingencies were based on the type, duration, and general frequency of such operations since 1991. Scenarios were developed using defense guidance and combatant command operational plans. Prior to the game, a concept of operations and list of associated forces for each operation were approved by game participants from OSD, the Joint Staff, combatant commands, and the services.

During the game, participants—primarily combatant command and service planners—allocated forces to these sequential and sometimes simultaneous military operations, considering the world situation and the need to reserve forces to respond to other potential crises, including major theater wars. While the participants generally allocated forces to a contingency using the previously developed force list, they could change the forces based on military judgment or sometimes their availability. For example, in one case, U.S. forces were deployed to a large-scale intervention when events in two other areas of the world became concerns. Rather than send an Army air assault brigade to one of the two areas as a show of force as originally planned, participants decided to deploy Air Force fighters and a Navy aircraft carrier and hold the Army's one remaining uncommitted air assault brigade in reserve.

DOD officials had differing views about whether the force allocation process in Dynamic Commitment resulted in the appropriate size and mix of forces being allocated to military operations. According to some game participants, there was a perceived need for each service to maximize the allocation of its forces to justify them and avoid force reductions. As a result, more forces than necessary may have been allocated to some operations. However, Joint Staff officials asserted that the force allocations during the game were appropriate, since they were generally consistent with those used in actual deployments and each service was there to ensure that others were not over-allocating their forces.

Dynamic Commitment Concluded That the Planned Force Structure Is Sufficient

As a result of the Dynamic Commitment war game series, DOD officials concluded that the projected U.S. force is sufficient in size, though stressed, to execute the defense strategy and that some forces already known to be stressed would continue to be so. Another significant insight was that sequential deployments to smaller-scale contingencies may have a cumulative, negative impact on the all-volunteer force. The series confirmed that high operating tempo remains an issue for previously identified "low density/high demand" assets—those major platforms, weapon systems, units, and personnel that are in continual high demand to support worldwide joint military operations and that are available in relatively small numbers. The series also identified other forces that were in high demand, such as military police and Army signal units.

According to DOD, the series helped identify forces that services should not cut and provided valuable insights into managing the force and the challenges of responding to multiple, overlapping smaller-scale contingency operations. Some service assets, identified as "low density/high demand" assets, are managed by the global military force policy, which establishes peacetime prioritization guidelines to assist senior leaders in allocating these assets for crises, contingency operations, and long-term operations. These assets include the Airborne Warning and Control System; the EA-6B, electronic warfare aircraft; and civil affairs units. According to Joint Staff officials, the Dynamic Commitment series affirmed their value and gave the services insights into managing them. The series also identified issues critical to ensuring that U.S. forces can transition from smaller-scale contingencies to wars. For example, it found that in the case of mobilization for a major theater war, the logistics of redeploying forces already committed in various regions around the world would be difficult and could seriously strain mobility and support forces. Although they did not summarize the results to make force structure recommendations or decisions based on the series, Joint Staff officials said the analysis provided insights into which forces should not be cut. It also made clear that there is much work still to be done in assessing the impact and managing the demands of smaller-scale contingencies.

Participants also discussed the potential impact of weapons of mass destruction and the consequences of limited theater access during the series. According to Joint Staff officials, the pace of force deployment slowed when chemical weapons were introduced. Also, the use of these weapons raised the awareness of force protection and the advantage of forces operating at a distance from the battle.

Dynamic Commitment Did Not Explore Any Changes to Force Structure

While the Dynamic Commitment series did yield some insights, DOD did not use it to identify or analyze any changes to DOD's current force structure. Evaluating alternatives might have led DOD to consider reducing some combat or war-fighting capabilities and adding others more suitable to the specialized needs of smaller-scale contingencies. Such alternatives could help alleviate operating tempo problems while maintaining forces capable of winning two major theater wars with acceptable risk.

Moreover, the services' analyses of the Dynamic Commitment data generally confirmed that certain parts of their forces were sustaining a high operating tempo. Had the Joint Staff or OSD centrally analyzed the data, they might have gained insights on how to better balance requirements for smaller-scale contingencies and wars across all services or identified excess or low-utility capabilities that could be reduced.

Regional Great Power Assessment Modeled Levels of Modernization

To test the U.S. ability to defeat a regional great power in the 2010-2015 time frame, DOD officials believed it was important to analyze an aggressor with greater capabilities than are currently anticipated for Iran, Iraq, or North Korea. The regional great power assessment attempted to examine this potential by modeling projected U.S. weapons and forces modernized at various levels against a notional enemy. However, this assessment did not analyze alternatives that varied the mix of DOD's planned modernization programs to help identify the most cost-effective investments. Also, it did not fully assess the potential impact of new technologies on future operational concepts and force structure. Even though the services are exploring new doctrine arising from advanced weapons, DOD officials believe that these efforts cannot be modeled yet.

Assessment Used a Campaign Model to Analyze Scenario and Data Developed for the QDR

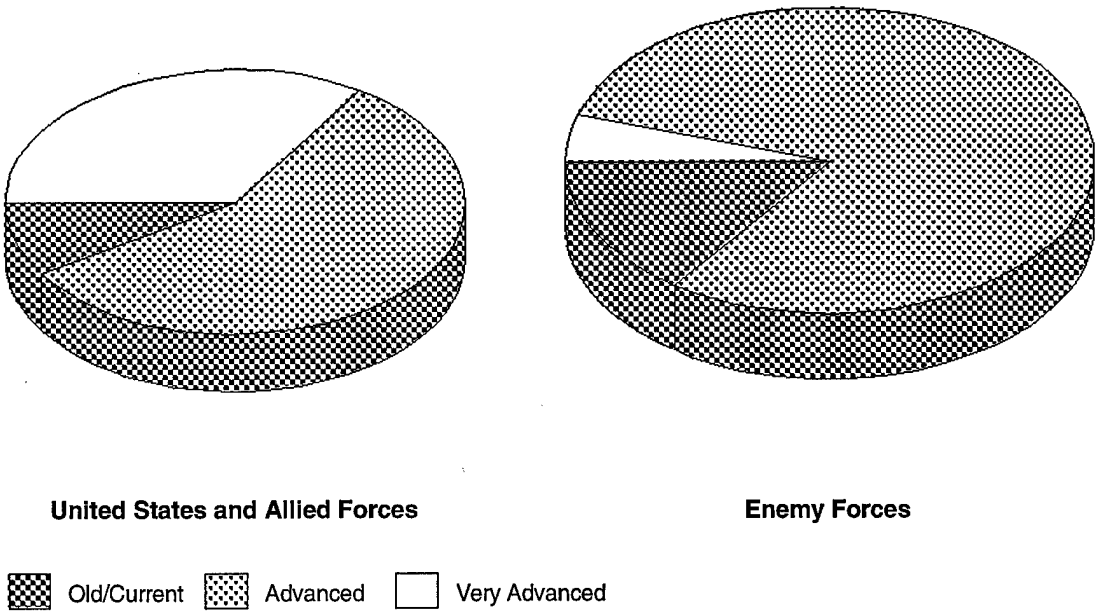
OSD considered using TACWAR to model the conflict between the invading enemy nation and allied forces. However, much of the baseline data needed for TACWAR to perform this assessment was not available in the level of detail needed and would have taken 6 months to prepare. As a result, OSD decided to use JICM, a multiple theater combat model developed by RAND, because it requires less definitive data to model campaigns.

The scenario for the regional great power assessment involved an air/land military conflict on a hypothetical continent in 2014. A large and technologically advanced regional great power had invaded its weaker neighbor to prevent its entrance into a fictional alliance. The United States was allied with a medium-sized power that bordered the weaker nation.

The U.S. objective was to repel the aggressor nation's forces and push them back to the pre-war border. OSD officials told us that they used this scenario because they did not want to identify any particular country as the focus of U.S. threat planning.

Developing the scenario required assembling large amounts of data that were not readily available. OSD constructed the hypothetical scenario using primarily Defense Intelligence Agency information regarding terrain, forecasted orders of battle, and weapon systems of current major powers. The enemy nation's capabilities were extrapolated from intelligence data on a major power after examining projected data for several potential adversaries. Its capabilities included large numbers of armored vehicles that were moderately technologically advanced. The intelligence community's projection of the threat data assumed a moderate level of economic growth for the enemy nation. The United States committed 75 percent of its forces to this effort. U.S. forces consisted of those projected for 2014, reflecting the services' 1997 force structure and modernization projections. The total number of U.S. and allied ground and air forces employed were about 80 percent of the enemy's, but U.S. and allied forces possessed more advanced air and ground forces than the enemy nation. (See fig. 2.1.)

Figure 2.1: Modernization Level of Regional Great Power Ground and Air Forces



Source: OSD.

According to OSD officials, several key assumptions were made for the regional great power assessment. JICM assumed that each side had equal intelligence on the activities of the other. In addition, it assumed that projected mobility forces were available and in working order and that support forces were ready and available. Success in a war with a regional great power was based on assessing the extent to which U.S. and allied forces accomplished specific tasks, such as minimizing allied losses and moving battle lines, and returning the enemy to its pre-war border.

Services Questioned Both the Scenario and Computer Model Used for the Assessment

Service officials criticized the regional great power scenario for not representing a full range of threats that would require a broader range of joint war-fighting capabilities. For example, Navy officials told us that main combat actions in the scenario occurred too far inland for naval aviation to make an effective contribution to the war and allow amphibious landings to be modeled at all. In general, maritime warfare was depicted only in a separate, supporting mobility analysis. An Air Force official stated that the proximity of the hypothetical continent to the United States was favorable to airlift capabilities.

Like TACWAR, JICM is an aggregate model and not sensitive enough to show the impact of other than major changes in force structure, according to OSD officials. Also, service officials told us that JICM did not simulate their forces' capabilities well. For example, Army officials complained that the theater-level focus of JICM modeled aircraft and air-delivered weapons more accurately than ground forces. Therefore, the contribution of different ground forces is not as clearly discernable as various types of air power. An Air Force official said the use of the Air Force's space assets also could not be modeled with JICM.

Results of the Game Confirmed the Benefits of Modernization

According to OSD officials, the results of the assessment reassured them that the 1997 modernization program was the correct one to follow for the foreseeable future. They ran numerous excursions with varying levels of modernization, warning time, and ballistic missile threat. In no excursion were the United States and its allies in danger of losing the war. However, DOD concluded that some excursions caused unacceptable levels of risk that the United States and its ally would not achieve their specific tasks.

The regional great power assessment modeled four levels of modernization: the 1997 force, the 1997 force extended to 2014, one-third and two-thirds of the 1997 extended force. The results showed that the more modernized the force, the faster the adversary was defeated, with less risk. In addition, the results showed that most of the benefits gained by modernization were achieved by the one-third modernized force. Increased levels of modernization did not significantly affect the final outcome of the war but did further reduce the risks.

JICM's other excursions also provided insights, according to DOD officials. Warning time before invasion of the victim nation by the adversary was varied in several excursions. The results showed that the shorter the warning time, the longer it took U.S. and allied forces to evict the

adversary. Although the enemy possessed a missile threat in all excursions, some excursions examined U.S. capabilities against an enemy with a substantially increased missile threat. Officials viewed this robust tactical ballistic missile threat as comparable to chemical weapons employment. The results showed that enemy missile attacks delayed but did not prevent the eventual allied victory.

Alternative Modernization Mixes, Force Structure Impacts, and QDR Modernization Decisions Were Not Modeled

DOD's regional great power assessment did not examine alternatives to the mix of modernization programs reflected in DOD's 1997 program. Moreover, neither force structure options nor the final modernization decisions in the QDR report were analyzed in the regional great power assessment. Like the major theater war assessment, OSD considered analyzing reductions to the force by 10, 20, and 30 percent, but these were not pursued for three reasons. First, OSD could not reach consensus with the services on the nature of the reductions because the scenario took place so far into the future. OSD officials told us that imposing reductions to the projected force without agreement would strain the credibility of this assessment with the services. Second, JICM models the campaign at too aggregate a level to show how changes in the force structure may make a difference in a conflict. Third, OSD officials decided to focus on modernization rather than force structure because they thought senior officials could benefit more from knowing the potential impacts of modernization on future wars. Finally, despite the time frame for the regional great power assessment, no innovations in doctrine or operational concepts were modeled. OSD officials told us that the services' exploration of new doctrine arising from advanced weaponry was not mature enough to be modeled.

U.S. forces were modeled in large, proportional modernization slices, that is, one-third, two-thirds, and full. There was no attempt to analyze varied mixes of air, ground, and maritime modernization to test their effectiveness. Although these slices were based on modernization plans, varying the mix might have provided more insight into modernization trade-offs.

Although the QDR modernization assessment was finished before the end of the regional great power assessment, OSD did not model the modernization decisions, saying that there was little interaction between the two assessment processes and that they had insufficient time to develop the data needed to model the results.

Chapter 3

Modernization Review Did Not Reflect a Mission-Oriented Approach

DOD's modernization review examined some variations of the services' planned modernization programs but did not reflect a thorough, mission-oriented approach to assessing the mix of capabilities the United States will need to counter future threats.[1] The Modernization Panel's assessments were divided into 17 topics, such as theater air and missile defense, tactical aircraft, and ground systems, and did not include formal analyses of trade-offs among the topics. While DOD officials said they considered Joint Vision 2010 capabilities, the review did not provide adequate assurance that the decisions reached represent the best mix of capabilities needed for a future in which emerging threats could generate requirements that differ significantly from the current mix of U.S. capabilities. Rather, the Panel's work consisted mostly of developing options to restructure some programs to provide a plan that DOD believes can be implemented within an expected procurement budget of $60 billion annually. Further, the Modernization Panel's analyses were not fully integrated with the work of the Force Assessment Panel. As a result, the QDR did not sufficiently examine linkages and trade-offs between force structure and modernization decisions.

Methodology for Modernization Review Resulted in a Primarily Budget-Driven Focus

In November 1996, DOD formed the Modernization Panel cochaired by senior officials from OSD and the Joint Staff. The Panel was instructed by OSD to evaluate the services' modernization programs by looking at what is needed to sustain the force with modern equipment and superior technology. It identified 17 topics, grouped into three broad categories: cross-cutting issues, equipment-focused issues, and technology and acquisition issues. The topics and some of the systems examined are included in table 3.1.

[1]"Missions" are defined as those functions for which the systems are used such as close air support, interdiction, intelligence operations, and electronic warfare.

Table 3.1: Modernization Topics and Types of Systems Reviewed

Topics	Systems
Cross-cutting topics	
Defense of the United States	Strategic forces, national missile defense, other nuclear, biological, and chemical threats
Theater air and missile defense	Ballistic missiles and cruise missiles
Command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR)	Joint surveillance and target attack radar system, unmanned aerial vehicles
Space-based surveillance and warning	Space-based infrared systems
Information assurance	Defensive systems
Navigation warfare	Global positioning system, global air traffic management systems
Equipment topics	
Ship acquisition strategies	Aircraft carriers, surface combatants, and submarines
Deep strike	Army Tactical Missile System, Joint Stand-off Weapon, Hellfire and Hellfire Longbow missiles
Tactical aircraft	F-22, F/A-18E/F, Joint Strike Fighter
Ground forces	Maneuver, firepower, operational and command and control systems, Crusader Howitzer, Comanche Helicopter
Special operations forces	Air, maritime; command, control, communication, computer and intelligence; and counter-proliferation systems
Strategic lift and prepositioning	System assessments were deferred for further study
Rotary wing aircraft	V-22, Comanche, Apache
Anti-armor munitions	Close, medium and deep systems
Technology and Acquisition topics	
Technology investment	Not applicable
International cooperation opportunities	Not applicable
Acquisition program stability	Not applicable

Source: OSD.

A separate task force of service, OSD, and joint staff officials was assigned to analyze each topic and arrive at a set of options. The objective of each task force, according to DOD officials, was to propose affordable plans for procuring systems that would modernize equipment and technology based on their view of capabilities for Joint Vision 2010, maximize jointness, and

minimize the time to develop them. According to Panel officials, affordable meant that DOD assumed its procurement budget would increase to and then remain at about $60 billion a year by 2000. As a result, task forces were asked to examine the projected funding for systems beyond the Future Years Defense Program to 2015, based on then-current procurement plans, and determine whether systems or groups of related systems were affordable in terms of whether they represented an appropriate share of the procurement budget, given procurement plans for other types of systems. For example, the tactical aircraft task force developed options to reduce out-year funding requirements for tactical aircraft systems because then-current procurement plans for the Joint Strike Fighter, F-22, and F/A-18E/F would require a significantly larger share of procurement funds than was allocated to tactical aircraft in 1998. The task force examining the Navy's ship acquisition program also explored options to reduce out-year funding requirements. Allowing these programs to go forward as planned would have required senior DOD officials to decrease funding for other types of systems to maintain overall procurement spending at $60 billion annually.

DOD was not able to provide the amount of planned funding for each of the 17 topics, but officials estimated that total annual procurement plans for the systems amounted to approximately $40 billion, or about two-thirds of DOD's planned annual procurement budget. The task force did not review some planned modernization efforts, such as antisubmarine and electronic warfare or minor procurement.

The Panel directed the task forces to assess the acquisition plans reflected in the fiscal year 1998 Future Years Defense Program and to consider increasing or decreasing funding allocated to each group of systems up to 10 percent as a means of encouraging them to develop options to modify planned programs. According to DOD officials, the task forces began briefing their options to the Modernization Panel and to senior DOD officials in February 1997. Neither the Panel nor the task forces made recommendations; each only proposed options. Soon thereafter, the Senior Steering Group directed the task forces to identify adjustments to the fiscal year 1998-2003 budget based on the options; the programmatic risk associated with each option; how the option would affect the military's capability to implement the defense strategy; the impact of the option on the industrial base; and the statutory, regulatory, and other external barriers to implementing the option.

In general, DOD's modernization decisions modified, but did not cancel, service procurement plans. The Secretary of Defense described the modernization decisions in the QDR as a modest reduction in some of the programs to ensure that the total program is realistic and executable within the budget. Some decisions decreased the number and delayed the procurement of some systems, reducing associated funding. For example, to sustain procurement of tactical aircraft systems at an affordable rate, DOD reduced the Air Force's plan to buy F-22s from 438 to 339 and delayed its full production time line. The Navy's plan to buy 1,000 F/A-18E/Fs was reduced to 785 with a provision to buy only 548, depending on the timely success of the Joint Strike Fighter. And the number of Joint Strike Fighters was reduced as well. In total, these changes reduced the services' $270 billion funding estimate for these aircraft by over $30 billion, or more than 10 percent.

Another task force examined the Navy's shipbuilding program. The Navy had planned to build up to 10 ships a year between 2004 and 2015, but that would increase annual spending in those years to over $12 billion, well above the fiscal year 2001-2004 average of $7.9 billion. After examining the number of ships planned for 2015 and the associated annual shipbuilding costs, the task force presented an option to reduce the 334 ships planned for 2003 to 303 and thereby reduce the annual shipbuilding estimate to between $8 billion and $8.8 billion. The task force suggested that the annual savings in operating and support costs associated with maintaining fewer ships could be used to increase the capabilities on new ships and modernize existing ones.

Other modernization decisions proposed increases to investment in some areas. For example, DOD increased its investments in biological and chemical defense by approximately $1 billion and national missile defense by about $2 billion. Furthermore DOD set aside $1 billion over the next 6 years for minor cost overruns and fund disruptions to ensure the stability of modernization programs, according to DOD officials.

Integrated Analyses Needed to Identify and Assess Weapon System Trade-Offs

The Modernization Panel's stovepipe approach to analyzing the services' procurement plans may have helped the task forces provide senior DOD officials with budget-based options for changing planned system modernization, but they did not provide an integrated look at how the options or final decisions impact joint war-fighting missions. For example, capabilities that might be used for the close air support functions, such as helicopters, tactical aircraft, and C4ISR systems, were evaluated as separate

topics by different task forces. We have previously reported on the benefits of looking at modernization from an integrated mission perspective.[2] The Chairman of the Joint Chiefs of Staff's Joint Vision 2010 also focuses on the need to achieve new levels of effectiveness in joint war-fighting. Noting today's smaller forces, the Chairman stated: "Simply to retain our effectiveness with less redundancy, we will need to wring every ounce of capability from every available source. That outcome can only be accomplished through a more seamless integration of Service capabilities." Furthermore, he stated that technology trends will provide an order of magnitude improvement in lethality that clearly offers promise for reducing the number of platforms and the amount of ordnance required to destroy targets. Citing budget realities, he also stated that DOD needs to be selective in the technologies it chooses to invest in and will have to make hard choices to achieve the trade-offs that will bring the best balance, highest capability, and greatest interoperability for the least cost.

According to Modernization Panel officials, neither their panel nor the task forces performed the type of integrated analyses of options across topics that could facilitate modernization trade-offs. Some said that such a perspective might have been provided by senior DOD officials at higher tiers of the QDR organization when they examined the different procurement options. Panel officials pointed to the senior officials' decision to examine Army ground and Marine ground force systems together rather than separately as evidence that at least some task forces were asked to look across some topics. However, other officials did not think that anyone systematically looked across the options to see their impact on joint war-fighting missions.

In September 1996, just prior to the QDR, we identified the benefits of evaluating modernization options from a joint perspective and the urgent need for such information, given the hundreds of billions of procurement dollars involved. In our report on combat air power, we concluded that DOD is proceeding with some major investments without clear evidence the programs are justified because of their marginal contribution to already formidable capabilities, the changed security environment, and less costly alternatives.

In its comments on our report, DOD agreed that mission assessments can improve understanding of military capabilities and limitations and are important to decision-making, but asserted that it has mechanisms to

[2]Combat Air Power: Joint Mission Assessments Needed Before Making Program Budget Decisions (GAO/NSIAD-96-171, Sept. 20, 1996).

provide that perspective. We recognized steps by DOD to improve the information available on combat requirements and capabilities through studies, the Joint Requirements Oversight Council, and its 10 supporting war-fighting capability assessment teams, but we noted that they had little impact on weighing alternative ways to recapitalize U.S. air power forces.[3] We also reported that while the individual services conduct considerable analyses to identify mission needs and justify new weapon program proposals, these needs are not based on assessments of the aggregate capabilities of the services to perform war-fighting missions. Furthermore, DOD does not routinely review service modernization proposals from such a perspective. We believe that the QDR was such an opportunity and that information on recapitalization alternatives and redundancies in capabilities, developed from a joint war-fighting perspective, would have been invaluable to decisionmakers who must allocate defense resources among competing needs to achieve maximum force effectiveness. Without such mission analyses, it is not clear whether DOD's QDR modernization decisions will simply replace current systems or buy the most effective mission mix of new systems to respond to future threats.

Force Structure and Modernization Assessments Need to Be More Collaborative

The QDR independent force assessment and modernization reviews were both performed between November 1996 and February 1997 and, according to DOD officials, did not fully consider the results of each other's work as bases for identifying potential trade-offs. Although senior DOD officials considered broad trade-offs between force structure and modernization at the macro level in determining which of three paths to adopt to meet near- and long-term challenges, we believe that more in-depth analysis of the relationship between force structure and modernization issues would have enhanced the value of DOD's review.

Modernization Panel officials said that the Panel's task forces did not consider changes in force structure in their deliberations. Furthermore, as noted in chapter 2, the regional great power force assessment, which evaluated the aggregate impact of modernization on force effectiveness in a future war, modeled DOD's fiscal year 1997 modernization procurement plans. It did not model the QDR modernization decisions. Some Panel officials suggested that a better linking of the two assessments could improve the quality of the QDR, because changes in force structure could affect the size of some procurements. Moreover, as suggested in Joint Vision 2010, leveraging new technologies should increase defense

[3]The 10 teams were strike; land and littoral warfare; strategic mobility and sustainability; sea, air, and space superiority; deter/counterproliferation; command and control; information warfare; intelligence, surveillance, and reconnaissance; regional engagement/presence; and joint readiness.

capabilities and could thereby offer opportunities to affect force structure. For example, as part of its Army Force XXI future force transformation initiative, the Army is designing, testing, and fielding new potentially smaller division designs to capitalize on digital technology and give commanders and soldiers better capability to gather and share information.

Agency Comments and Our Evaluation

In written comments on a draft of this report, DOD asserted that we characterized the QDR's modernization options as "budget driven" and based "solely" on a plus-and-minus 10-percent rule. While acknowledging that the overall modernization budget was a central concern of the QDR, DOD said that the primary factor influencing the modernization analyses was the capabilities of current and planned systems. We agree that the Panel's guidance to the task forces in proposing alternatives based on budget parameters was not the task forces' sole consideration when developing modernization options. In fact, our report specifically said that the task forces were directed to develop options that would consider the capabilities required for Joint Vision 2010, maximize jointness, and minimize the time needed to develop them. However, we continue to believe that the Panel's methodology for the modernization review resulted in a primarily budget-driven focus rather than a mission-oriented approach. According to the Panel's leadership and other participants, proposing budget parameters of plus-or-minus 10 percent was the means the Panel used to encourage the task forces to develop options for their specific group of systems. These budget parameters were further evident in the task forces' options on tactical aircraft and other modernization topics.

DOD cited the tactical aircraft decisions as an example where significant technical or other capability advantages of next-generation systems over current systems resulted in force structure-modernization trade-offs. However, while the task force analyses of the F-22 resulted in an option to reduce aircraft by nearly 100 (from 438 to 339), possibly changing the future mix of tactical aircraft, DOD did not examine other options, such as whether advanced technologies like stealth could reduce the Air Force's 20 fighter wing force structure. Further, the reductions in F-18E/Fs and Joint Strike Fighters were generally based on a proposal that fewer aircraft would be sufficient to replace existing aircraft and affordable within the budget, not because the Navy expects to reduce its force structure by cutting the number of carrier fighter wings.

Planning for the Next QDR Can Help Provide for a More Thorough Review of Defense Needs

DOD can enhance the value of the next QDR by providing formal oversight of QDR preparation efforts, improving models and other analytical tools, and considering changes to the QDR's structure and design. The Secretary of Defense has not yet established formal oversight at a senior level to facilitate preparation activities for the next QDR, including completion and coordination of follow-on studies to the 1997 QDR. Moreover, although DOD has an effort underway to improve its theater war models to overcome significant limitations in simulating intelligence and other capabilities, it has not determined how to improve its analyses of other types of military operations, such as smaller-scale contingencies and scenarios involving longer-term threats. Changing the timing of the panels' work, building greater collaboration among some panels, and delaying the QDR until later in the new administration's term may also provide a more thorough review. Finally, if Congress determines that a panel of experts should provide an independent view of defense requirements, it might require the panel to complete its work earlier so that DOD can consider the panel's views when conducting the QDR.

DOD Needs to Take Early Steps to Prepare

Although there is no current statutory requirement for another QDR and DOD has not taken formal steps to institutionalize a QDR process, the Secretary of Defense has endorsed the QDR as a continuing process. OSD officials who played a key role in DOD's 1997 review stated that there is a widespread assumption throughout DOD that the Department will conduct another QDR following the 2000 election. DOD has some initiatives underway that could help it prepare for its next review. For example, DOD is working to improve some analytical tools and is performing some follow-up studies to the QDR. These efforts could equip DOD to perform valuable analyses of its planned force before the next QDR begins. However, DOD has not yet developed plans to improve other tools and analyses that could be important for the next QDR. Moreover, it has not ensured that its efforts will be coordinated and completed in time for the next review.

DOD Has Plans to Improve Some, but Not All, of Its Analytical Tools

DOD has efforts underway to improve some of the analytical tools used in the 1997 QDR. It is developing a new campaign model, called JWARS and is looking at ways to improve others, such as TACWAR, as well as supporting data to alleviate some of the current campaign modeling limitations. We did not identify comparable efforts by DOD to improve the analyses of smaller-scale contingencies or conflicts with future adversaries who have advanced technologies. Completing these efforts in a timely manner would

enhance the potential for the next QDR to provide better analyses of alternatives.

According to DOD officials, JWARS is expected to improve DOD's ability to evaluate the forces' effectiveness in combat operations. Documents provided by the JWARS Office note that current theater-level simulations, including TACWAR, have limitations that make them only "somewhat" or "poorly/not at all" capable of simulating a number of combat activities (see table 4.1).

Table 4.1: Limitations of Current Theater-Level Simulations

Activity	Somewhat capable	Poorly or not at all capable
Joint warfare	X	
Ground engagement	X	
Ground maneuver		X
Air superiority	X	
Air and missile defense	X	
Strategic air		X
Strike		X
Naval surface warfare	X	
Naval anti-submarine warfare	X	
Naval mine warfare	X	
Naval amphibious operations		X
Command, control, and communications		X
Intelligence, surveillance, and reconnaissance		X
Logistics combat support/combat service support		X
Weapons of mass destruction		X
Special operations		X

Source: JWARS Program Office.

DOD expects that, based on the current development and funding schedule, which was planned to coincide with the next QDR, an initial version of JWARS should be available for the next review. DOD expects this version to be useful in analyzing the sufficiency of the force. Subsequent versions of JWARS are expected to be capable of analyzing force and capability trade-offs, force planning, and force structure design as well as system alternatives, system trade-offs, and operational concepts.

DOD's Joint Analytic Model Improvement Program is another effort that DOD has underway to improve its models. The objective of this program, which is directed by OSD's Office of Program Analysis and Evaluation, is to determine how current models such as TACWAR should be improved. The program is tracking and coordinating the models' improvement schedules with JWARS' introduction.

Gathering and maintaining the large quantities of data needed to run the models is another challenge DOD faces. In the past, DOD lacked a central repository for data, forcing users to recreate data on threats, targets, and other factors whenever they began a new study. DOD officials told us that the Department has established the Joint Data Support System to centrally store and update this data. The system will include information on U.S., allied, and enemy orders of battle, terrain, and weapon systems' capabilities, in addition to other data developed for the Deep Attack Weapons Mix Study. This system will be linked to JWARS and will be easier to update than current methods.

Although DOD has several efforts underway that should improve the quality of its major theater war assessments for the next QDR, it has not determined what improvements should be made to improve its assessments of force requirements for smaller-scale contingencies. Although DOD officials saw the Dynamic Commitment war game series as a valuable exercise in examining the implications of a post-Cold War environment in which smaller-scale contingencies may occur frequently, DOD did not use the exercise to identify and examine force structure alternatives. As noted in chapter two, the war game series was primarily an exercise in allocating planned forces to military operations based on participants' military judgment. DOD does not have an effort underway to analyze how Dynamic Commitment could be improved for the next QDR or replaced by another analytical tool. Examining ways to improve the Dynamic Commitment war game so that it can be used to identify and examine force structure alternatives would be a valuable step in preparing for the next QDR.

DOD also needs to determine how it can improve its analysis of requirements for conflicts against future adversaries who may have access to advanced technologies or employ asymmetric concepts of warfare. At the same time, DOD will need to consider how to model new technologies such as digitization that are expected to be employed by U.S. forces in the future as well as the changes in operational concepts and doctrine that could result from such technologies. As noted in chapter two, DOD's

regional great power assessment did not model changes in doctrine or operational concepts that could result from technological advances or place much emphasis on asymmetric warfare. In addition, DOD officials built the database for the regional great power analysis during the 3- to 4-months allocated for the QDR force assessments. According to OSD officials this was a time-consuming process that reduced the time available to examine alternatives to the programmed force. Preparing for the next QDR by working with the intelligence community and other sources to develop a database containing detailed information on future enemy and allied capabilities, targets, and weapon performance could help DOD focus its QDR assessment on examining alternatives.

Analyses of Planned Forces' Capabilities Can Be Performed Before the QDR Begins

As part of its preparation for the next QDR, DOD could run analyses of its existing forces that could serve as the basis for comparison to force alternatives caused by changes to strategy or other factors. During the 1997 QDR, DOD spent much of its time modeling the 1997 force's ability to fight and win two major theater wars, meet the demands of smaller-scale contingencies, and fight a regional great power. Had these force assessments been done as part of DOD's preparation for the QDR, the time could have been spent modeling alternative force structures, which might have provided insights into the best-suited force.

Formal Oversight Might Aid Preparation for the QDR

DOD has not established formal oversight at a senior level to coordinate the overall model improvements, follow-on studies, and other preparations for the next QDR. Several offices in DOD are improving models and databases and are performing follow-on studies to the QDR and the National Defense Panel report on topics such as requirements for strategic lift, active/reserve force mix, operations in a chemical environment, and information technology. However, DOD has not issued guidance establishing which office will monitor these efforts or determined how the results of these efforts will be coordinated and integrated in the next QDR. Such oversight might help to ensure that the efforts are completed in time. DOD could also provide direction on issues such as the types of analyses to be performed, the associated data requirements, who will provide the analytical support, how lessons learned will be gathered and shared, and time lines for completing the activities needed to support the next QDR.

DOD Should Consider Changing the QDR Process and Timing

DOD also may be able to enhance the value of the next QDR by examining options for changing the process DOD established for the 1997 QDR and modifying the review's timing. We identified the following observations for potential improvements to the QDR process based on discussions with DOD officials and our review of documentation on how the QDR process worked.

Collaboration Among Panels and the Sequencing of the Defense Strategy Should Be Examined

Although DOD officials modified the force structure slightly as a result of the QDR, these decisions were not based on the three major force assessments. The QDR report identifies three paths that DOD considered and that included varying levels of modernization and force structure sizes. However, some defense experts have criticized this framework as being too simplistic in that two of the options—such as the option to maintain the current force structure but forego DOD's goal of increasing procurement to $60 billion per year—were not options that DOD would seriously consider.

Moreover, DOD's force structure and modernization panels completed their analyses separately and did not model trade-offs between modernization and force structure. For example, DOD's regional great power analysis modeled DOD's planned force with various levels of modernization but did not examine whether a more modernized but smaller force would be effective in defeating potential aggressors. According to some defense experts, technologies such as stealth aircraft, precision munitions, and digitized forces may enable the United States to reduce force structure in the long term. DOD has several options for ensuring better integration of modernization and force structure decisions. DOD could maintain separate panels but provide guidance to ensure that the panels collaborate and that trade-offs between force structure and modernization are examined. Alternatively, DOD could establish one panel to analyze force structure and modernization issues.

DOD officials expressed different views on the need to alter the timing of the defense strategy review. DOD began developing the strategy early in the QDR process and provided a draft of the strategy in January 1997 but did not finalize it until March 1997, when the force structure and modernization panels had completed much of their work. Several DOD officials, including those responsible for drafting the strategy and OSD officials who were responsible for leading the force assessments, did not perceive the lack of an approved strategy as a problem because the strategy was provided in draft to panel chairs. However, some service

officials and panel members stated that the draft strategy was not widely disseminated and that the lack of a final strategy led to confusion, particularly since the Secretary of Defense changed during the QDR and the new Secretary could have made significant changes to the strategy.

Delaying the Start of the Next QDR May Result in a More Thorough Review

The 1997 QDR began after the 1996 presidential election and was performed by a returning administration—although a change in Secretary of Defense occurred during the early months of the QDR. However, if the next QDR occurs following the 2000 presidential election, DOD will have to conduct its analysis while undergoing a change in administration. This may further complicate DOD's efforts to perform the QDR because of the large turnover of senior DOD officials that may occur. Many DOD officials we spoke to characterized the 6-month time frame for conducting the 1997 QDR as being extremely tight given the complex nature and large number of issues, even with relatively little turnover among senior personnel. Officials also cited the short time frame as a key factor that limited the number and types of alternatives assessed. Delaying the QDR from the first to the second year of the presidential term is an option that would allow more time for an administration to put its key senior people, including the Secretary of Defense, in place; develop a defense strategy; prepare for the QDR; and conduct appropriate analyses. Such a delay in starting the QDR might be useful in providing a new administration with sufficient time to conduct a comprehensive strategy review and have a good analytical basis for making difficult choices among competing priorities.

Delaying the process for a year may have some disadvantages. Several OSD officials stated they opposed a delay because it would postpone the administration's ability to impact the defense budget until well into a president's term. The current timing would allow QDR decisions made in 2001 to impact the president's fiscal year 2003 defense budget. A QDR that concludes in 2002 would affect the 2004 defense budget. Even if the review were delayed, a new administration could still make some changes in the 2003 budget through the program, planning, and budgeting system. However, a completed QDR may enable an administration to make more fundamental changes.

Congress May Want to Consider Changes to National Defense Panel Timing

Congress has not enacted a permanent requirement for an independent panel of experts to supplement DOD's analysis of future defense requirements. However, work by a congressionally chartered independent panel, if conducted prior to the QDR, could be used to encourage DOD to consider a wider range of strategy, force structure, and modernization options. Conducting a fundamental reassessment of defense requirements, as envisioned by the QDR, is extremely challenging for DOD, given that its culture rewards consensus-building and often makes it difficult to gain support for alternatives that challenge traditional ways of doing business. As evidenced by the 1997 QDR force and modernization assessments, DOD spent most of its analytical effort confirming that its current forces and initiatives were adequate to meet future defense requirements and restricting its analysis to "salami-slice" alternatives. By preceding DOD's own efforts, an independent panel similar to the National Defense Panel could provide DOD with alternatives to analyze during the QDR.

Conclusions

DOD could add value to the next QDR by establishing formal oversight, improving its analytical tools, and making changes to the QDR's structure and design. Establishing formal oversight would reinforce the importance of the QDR as an ongoing tool for assessing force structure and modernization requirements and help to identify and establish priorities for key preparation tasks. It could also provide an impetus for improving DOD's analytical tools to evaluate requirements for theater wars, smaller-scale contingencies, and future warfare, including the potential impact of advanced technology and new concepts of operations. In addition, summarizing lessons learned from the 1997 QDR could enable DOD to develop options to make the process more effective in the future.

Recommendation

The Secretary of Defense has endorsed the concept of the quadrennial review of defense needs. To enhance the value of the next QDR, we recommend that the Secretary of Defense assign responsibility for overall oversight and coordination of DOD preparation efforts. Preparation tasks should include identifying the analytical tools and data needed to support force structure and modernization analyses, monitoring the status and funding for efforts to upgrade DOD's models, summarizing lessons learned from the 1997 QDR, and considering the need to change the structure and timing of the QDR process.

Matter for Congressional Consideration

If Congress chooses to establish another panel of experts to provide an independent review of defense needs, it may wish to require the panel to complete its work prior to the next QDR. This approach could provide DOD with a broader set of options to examine in its review.

Agency Comments and Our Evaluation

In written comments on a draft of this report, DOD concurred with our recommendation that the Secretary of Defense assign responsibility for overall oversight and coordination of DOD preparation efforts for the next QDR. DOD stated that it is identifying the analytic tools needed for the next QDR and is improving existing tools where shortcomings have been identified. It also stated that it is examining areas of U.S. defense strategy and associated military capabilities not fully explored by the QDR or that were raised by the National Defense Panel, in addition to commissioning studies of internal and external lessons learned from the 1997 QDR. Moreover, it concurred with our conclusion that there is no central authority to ensure that follow-up efforts are integrated and that centralization could improve QDR preparation efforts. DOD also agreed that any mandated panel similar to the National Defense Panel should precede the QDR.

DOD did not concur with our characterization of the QDR process in some areas and with our recommendation to consider changing the timing of the QDR. First, DOD stated that our draft was overly concerned with the benefit of having the QDR's panels report sequentially. For example, DOD noted that the draft strategy had been briefed early in the QDR to the force assessment and modernization panels and that they were told to base their assumptions on this draft. DOD further stated that if panel members were confused as to the final shape of the strategy, it should not be blamed on the QDR process. Second, DOD wrote that our draft placed undue emphasis on the force assessment and modernization panels acting as "stovepipes." DOD stated that the QDR's structure allowed panels to focus on a tractable set of issues and that the Integration Panel ensured that all the various panel reports were combined into a coherent set of options. Finally, DOD wrote that beginning the QDR process later in a presidential administration would force the Secretary of Defense to wait two years before submitting a budget that reflects an administration's strategy, priorities, and program.

We believe that our characterization of the QDR process does not overly stress the benefits of having panels report sequentially. We acknowledge that DOD officials primarily responsible for drafting the strategy and leading the force assessments believed that providing the draft strategy in January 1997 and the final strategy in March 1997 did not pose a problem

for the panels. However, some panel members perceived that the lack of a final strategy earlier in the process led to confusion. We note that the 1997 QDR was conducted under favorable conditions in that many senior DOD officials were in place prior to the November presidential election to begin work on the strategy and that major elements of the strategy remained the same. We believe that significant concurrency between the strategy review and force structure and modernization assessments could be more problematic for the next QDR, which will be conducted by a new administration, particularly if senior officials decide on a new strategy that alters key force planning assumptions. Therefore, we believe that DOD should consider the need to finalize the strategy earlier in evaluating changes to the QDR process.

In addition, while we agree that senior officials combined the work of the panels into broad, macro level alternatives, the panels themselves lacked a high degree of integration. For example, more collaboration between the regional great power force assessment and modernization analysis, possibly as a single panel, might overcome challenges to the timely sharing of information and would have permitted DOD to explore force structure versus modernization trade-offs. We acknowledge the benefit of breaking down a giant task like the QDR into discrete issue panels. If the overarching Integration Panel is the best means available for combining those panels' reports into coherent options, it could benefit from collaboration occurring at the lowest possible levels to make its work easier.

Finally, while we recognize DOD's concerns regarding changing the timing of the QDR to later in an administration's term, we continue to believe that the 1997 QDR faced challenges from its tight time-frame, despite the benefits of a returning administration and speedy appointment of a new Secretary of Defense. The next QDR will be performed by a new administration. If the next QDR is delayed, it would allow the new administration to appoint its senior defense leadership, develop a defense strategy, prepare for the QDR, and conduct appropriate analyses. Our observation does not seek to limit a new administration's flexibility in determining how and when to conduct the next QDR. Rather, it attempts to give a new administration the benefit of more time to perform a more rigorous review before reaching conclusions that will shape the future of DOD and its budgetary priorities.

Comments From the Department of Defense

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STRATEGY
AND
THREAT REDUCTION

MAY 29 1998

Mr. Richard Davis
Director, National Security Analysis
National Security and International Affairs Division
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441 G Street, N.W.
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Dear Mr. Davis:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report entitled, "QUADRENNIAL DEFENSE REVIEW: Opportunities to Improve the Next Review," dated May 1, 1998 (GAO Code 701119/OSD Case 1805). The DoD concurs with the report recommendation that the Secretary of Defense should assign responsibility for coordinating DoD preparation efforts for future Quadrennial Defense Reviews (QDRs). The DoD also concurs with the GAO recommendation to Congress that, if it chooses to establish an independent panel of experts to analyze future defense requirements, it require the independent panel to precede the QDR. Despite our agreement with these conclusions, the DoD nevertheless takes issue with several of the GAO characterizations of the QDR effort, particularly 1) that the panel process was hampered by its concurrency; 2) that the modernization effort was "budget driven"; and 3) that modernization and force structure decisions were not integrated. The DoD also disagrees with the GAO's assertion that beginning the QDR process later in a presidential administration is a viable alternative to the timing used to launch the 1997 QDR and 1993 Bottom-Up Review.

The DoD strongly agrees with the GAO recommendation that the Department should undertake preparations for the next QDR. Indeed, the Department is currently executing many of the tasks identified by the GAO report. Primary responsibility for this preparation has thus far resided within the Office of the Secretary of Defense (OSD) and Joint Staff offices that directed the first QDR--Program Analysis and Evaluation, Strategy and Threat Reduction, and J-8--and has covered analytic tools, strategic and policy considerations, and methodological lessons learned.

First, the Department is identifying the analytic tools and data that will be needed for the next QDR and is improving existing tools where shortcomings have been identified. For instance, as part of the Joint Requirements Oversight Council process, we will consider the limitations in our analytic capabilities as they relate to the strategies and issues likely to arise in the next QDR. We have already made significant progress in identifying the tools and data needed to support the QDR analyses.

However, the analytic tools do not stand alone. They must be integrated into a larger collaborative study environment involving experienced analysts and warfighters.

The DoD is also examining areas of U.S. defense strategy and associated military capabilities that were either not fully explored in the QDR or were raised by the National Defense Panel (NDP). For instance, in the coming months, the Deputy Secretary of Defense will receive the results of a Department-wide effort to assess DoD progress on select NDP recommendations. Further, the DoD has commissioned both internal and external studies summarizing lessons learned from the 1997 QDR. The Institute for Defense Analysis (IDA) briefed its interim report on "QDR Lessons Learned" in February 1998. We will use the lessons learned from the IDA analysis as well as internal DoD analyses to improve our methodological approach to the next QDR.

While these efforts are extensive, there is no central authority to ensure that they are integrated, sufficient, and timely. We concur with the GAO contention that such centralization could improve preparation efforts. In line with the GAO conclusion, we will examine whether the Secretary of Defense should assign responsibility for QDR preparations to the Deputy Secretary of Defense.

We likewise concur with the matter for Congressional consideration: namely that any mandated independent panel akin to the National Defense Panel should precede the Department's own QDR efforts. As the Secretary of Defense noted in his response to the NDP report, the Panel performed a significant service to the Nation in making its long-term recommendations to the Defense Department. Perhaps the Panel's greatest strength was its focus on the many security challenges that lie ahead and on a transformation strategy to meet those challenges. While its inputs were valuable to the Department in the course of the QDR and thereafter, the DoD agrees that such strategic guidance, if mandated by Congress, would be most useful prior to the commencement of a QDR. In this way, the Department could fully benefit from the panel's broad strategic outlook and could consider the outside panel's findings as part of its deliberations.

See p. 52.

While agreeing with the GAO recommendations, the Department does not concur with the GAO characterizations of the QDR structure, process, and product. First, the GAO seems particularly concerned that QDR panels did not report sequentially. In fact, the characterization of the security environment and the defense strategy were indeed the first pieces of the Review to be completed. By the middle of January 1997, OSD and Joint Staff representatives had thoroughly briefed all other QDR panels on the strategy. While the GAO reports that some panel members blamed a lack of certainty about the strategy for delays in their own work, the Strategy panel made clear to components that they should base their strategy assumptions on the draft strategy in circulation. Any failure to do so should not be blamed on the QDR process.

While the QDR strategy was prepared in advance of other panels' briefings, there was significant cross-fertilization between the strategy and the rest of the Review. In particular, the process of determining what military capabilities are required to fulfill the strategy was conducted interactively with the work of the other panels. This cross-fertilization is prudent to a well-formed defense review: a workable strategy must acknowledge resource, technological, and operational constraints. Thus, required military capabilities were examined in light of the work of the Force Assessment and Modernization Panels as well as in light of resource constraints. By combining the sequential and the concurrent, the Department strengthened its QDR findings.

The draft report's second mischaracterization is its suggestion that the QDR panels--namely the Force Assessment and Modernization Panels--functioned as stovepipes. A strength of the QDR structure was the extent to which it allowed each panel to focus on a tractable set of issues while enabling senior leaders to evaluate and make decisions based on an integrated picture. The Department believes that while the degree of integration varied among the panels, the Integration Panel ensured that all of the various panel reports were combined into a coherent set of options for the Secretary's review and decision. The "Integrated Paths" briefing, shared with the GAO, was the culminating step in that integration process, providing an overarching look at The DoD operations.

See p. 52.

The GAO's third mischaracterization of the QDR is that its modernization options were "budget driven" and based solely on a plus or minus 10 percent rule. While the overall size of the modernization budget was indeed a central concern of the QDR--as laid out in the "Integrated Paths" briefing - the primary factor influencing the modernization analyses of the Modernization Panel and the Force Assessment Panel's Regional Great Power Assessment was the capabilities of current and planned systems. Where the DoD identified significant technological or other capability advantages of next-generation systems over current systems, it made force structure-modernization tradeoffs. For example, our assessment that the F-22 provides improved tactical air capability allowed us to move from four tactical wings to three. In addition, the conclusion that the Joint Strike Fighter (JSF) was an improved and more capable system allowed us to cut back on the F-18E/F and move toward JSF acquisition more quickly. Neither of these decisions, or others like them, was based on a plus or minus 10 percent rule.

See p. 43.

Finally, the draft report proposes that the Department consider beginning the QDR process later in a presidential administration. There are numerous disadvantages to the current practice of beginning a QDR after a change in administration. It is to alleviate the strain imposed by the current system that the Department is investing in substantial preparatory work now. Despite these cautions, the drawbacks in delaying such an important process until later in a presidential term are even greater. Under such a delayed system, the Secretary of Defense would have to submit two budgets and wait two years before submitting one that reflects that administration's strategy.

See pp. 52-53.

priorities, and programs. Ultimately, the DoD believes that administrations should be allowed the flexibility to determine for themselves how and when they will conduct their defense reviews.

I appreciate the opportunity to review and comment on the draft report. I look forward to working with the GAO to resolve the outstanding issues cited above.

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